

# Fingertip injuries in rock climbers

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The sport of rock climbing has undergone a significant change in recent times with technically harder climbs being attempted more often. This has meant that climbers have taken to more training including weight training, using artificial climbing walls and the more traditional 'bouldering' i.e. training on natural outcrops and boulders. This increase in standards has led to injuries associated with more extreme use and training. This paper reports on a novel fingertip injury found in rock climbers.

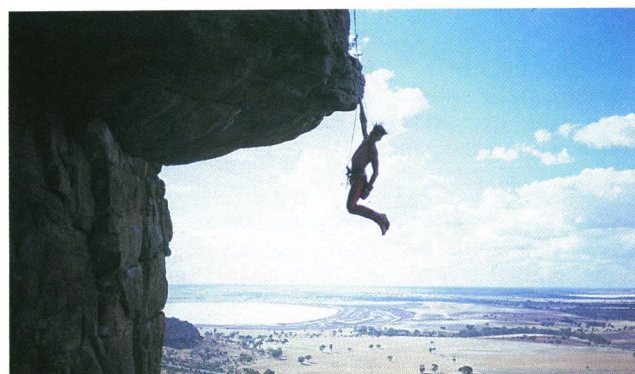
## Case report

The injury described consists of damage to the skin of the finger tips caused by prolonged extreme rock climbing. The palmar surface of the fingertips, initially the index and middle fingers, and subsequently the ring and little fingers first become red and have a mild serous exudate. Subsequently they become white and the skin macerated. If subjected to further injury, the skin over the finger tips may split. An affected climber will have to rest for around two weeks for full recovery. The lesion is illustrated in *Figure 1*.

A group of rock climbers who had been climbing for several weeks at Mt. Arapiles, Victoria, Australia, were examined and interviewed by the author. All were male and had been undertaking technically difficult climbs. Six out of nine had been, or were suffering from, finger tip damage which had occurred at between one and four weeks' climbing. The affected climbers had had fewer rest days (1–2 per week) than those not affected (2–4 days per week). The index and middle fingers were the worst affected. Recovery occurred with one to two weeks' rest.

## Discussion

Mountaineering and rock climbing are generally thought of as a high risk sports. Altitude sickness, exposure, trauma due to falls and snow blindness are well described<sup>1</sup>. Less information is available on rock climbing injuries. Upper limb injuries including tendon avulsion, tenosynovitis in fingers and wrists and shoulder capsulitis have been described in rock climbers<sup>2</sup>. Finger tendon injuries are a particular problem.



**Figure 2.** Extreme pressure can be exerted on the fingertips

The finger injury described in this report is probably the result of a combination of severe and prolonged pressure and abrasion to the finger tips. The pressure at the finger tips of a climber doing the extreme move of a static hang on two fingers is calculated to be approximately 1000 kPa, assuming a weight of 70 kg and weight bearing area of two finger tips of approximately 7 square centimetres (*Figure 2*). This compares with systolic blood pressure of 20 KPa (150 mmHg). Dynamic pressures are potentially greater, thus the potential for both mechanical and ischaemic damage.

## References

- 1 Ward, M. 'Mountain Medicine', Crosby Lockwood, London, 1975
- 2 Banister, P. and Foster, P. Upper limb injuries associated with rock climbing *Br J Sports Med* 1986, **55**, 20–22

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